Lugol chromoendoscopy combined with brush cytology in patients at risk for esophageal squamous cell carcinoma

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BACKGROUND AND STUDY AIMS: Patients with achalasia or malignancies of the head and neck are at increased risk for esophageal squamous cell carcinoma. The discussion of a screening and surveillance program is controversial. The aim of the present study was to determine the diagnostic potential of Lugol chromoendoscopy combined with brush cytology to diagnose esophageal squamous cell carcinoma and high-grade dysplasia. Secondly, the benefit of additional biomarkers was investigated.

PATIENTS AND METHODS: A total of 61 patients (21 patients with achalasia and 40 patients with malignancies of the head and neck) were included. Chromoendoscopy with 1.2% Lugol iodine solution with targeted biopsies and brush cytology processed by digital image cytometry (DICM) and fluorescence in situ hybridization (FISH) from unstained lesions (USLs) and stained mucosa were performed.

RESULTS: Six of the 61 patients had USLs >/=2 cm. Four patients had high-grade dysplasia (HGD) or carcinoma in situ (CIS). One patient with HGD and one patient with CIS were detected only after Lugol chromoendoscopy. The sensitivity and specificity for detected HGD or CIS in USLs >/=2 cm were 100% and 96.5%. No dysplasia was found in USLs <2 cm. DNA ploidy by DNA cytometry and p53 loss of heterozygosity (LOH) by fluorescence in situ hybridization showed no additional impact on diagnostic accuracy.

CONCLUSIONS: Lugol chromoendoscopy enhances the detection rate of high-risk lesions with dysplasia or carcinoma in situ in large unstained lesions. Biomarkers such as aneuploidy and p53 LOH from brush cytology were not of additional benefit in this setting.

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